REMARKS

The Examiner is thanked for the Official Action mailed February 9, 2004. This Amendment and request for reconsideration is intended to be fully responsive thereto.

In the Rejection, claims 1-5, 7, 16, 17, 19, 20, and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,470, 431 to Okudu. Claims 2, 3, 6 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Okudu in view of U.S. Patent 5,918,664 to Torigoe or U.S. Patent 5,562,158 to Nishishita. Claim 18 was rejected under 35 U.S.C. 112 first paragraph, as failing to comply with the written description requirement. Claims 8-15 were previously withdrawn.

With regard to claim 1, claim 1 has been amended to indicate that the flat tubes are formed from first and second plates having grooved and non-grooved portions, the concavities of the grooved portions are turned toward each other so that the non-grooved portions of the plates are brazed together to form the flat tubes. Support for the amendment is shown in Figure 1 of the present invention.

The Okuda reference discloses two flat plates wherein the non-grooved portion of the plate is brazed to the grooved portion to form a flat tube. As best shown in Okuda Figure 3, even if one were to define the channel 7a as "the grooved portion" of the plate, the concavity of the channel 7a is turned away from the corresponding plate 6, rather than toward the grooved portion of the corresponding plate 6, as specifically claimed in amended claim 1.

With regard to claims 2 and 4, Okuda does not positively cite the claimed limitations. Further, there is no indication that the Okuda drawings are to scale and dimensions down to the millimeter cannot be inferred from simply looking at the drawings. Additionally, the cited dimensional limitations are the result of extensive analysis and experimentation to determine the optimal efficient design and are not simply "obvious".

With regard to claims 3, 4-6, and 21, the currently claimed invention is an evaporator, however, the Examiner cites Nishishita to reject the claims. Nishishita is a "heat exchanger" and there is no indication that the Nishishita heat exchanger could be used as an evaporator. Further, claim 5 is not specifically addressed in the rejection.

Notably, claim 21 recites specific optimal dimensions in the direction of the airflow, which results in a reduced bulk of the evaporator in recited direction, and a saving of material. Reduction is bulk/size tends, however, to reduce the surface area for exchange between the two fluids. This tendency is compensated for by the choice of a distance d, which is also reduced in the manner recited in claim 21. The combination of these two dimensional characteristics makes it possible to reconcile the reduction in bulk and the saving in material which are mentioned above with a level of performance comparable to that of the evaporators usually used for air-conditioning the passenger compartment of motor vehicles. The prior art fails to teach or render obvious the dimensions recited in claim 21.

With regard to claim 18, claim 18 has been amended to indicate that the non-grooved portions of the first plate are brazed to the non-grooved portions of the second plate to form ribs, which add stability to the evaporator. As described above, the Okuda reference does not disclose an embodiment wherein the non-grooved portions are brazed together.

With regard to claim 19, claim 19 has been amended to indicate the inner circulation channels have different widths. As best shown in Okuda Figure 3, the Okuda reference discloses circulation channels that are all the same width.

With regard to claim 20, if the first plate slides laterally in one direction or the other until one rib abuts another, the ribs are still not connected to the inner circulation channel at a mid-point.

With regard to newly added independent claims 23-25, claim 23 claims that the first and second metal plates forming the flat tube are brazed together along a brazing interface plane. The brazing interface plane defines a single flat plane extending between said first and second metal plates. Claim 24 claims that the interface plane coincides with the lateral centerline of the inner circulation channels, and claim 25 claims that the first metal plate is a mirror image of the second metal plate when the first metal plate is brazed to the second metal plate. As shown in Okuda Figure 3, the first plate 6 is brazed to the second plate 6 along at least two planes that do not coincide

with the inner circulation channel centerline. Further, in the installed position, the Okuda first metal plate is not a mirror image of the Okuda second metal plate.

It is respectfully submitted that claims 1-7 and 16-25 are now in condition for allowance. Applicants believe that no fee is required for this submission. However, should a fee be due, please charge such fee to Deposit Account No. 50-0548. If, after reviewing the above amendments and remarks, the Examiner believes that any issues remain unresolved, the Examiner is respectfully requested to contact the undersigned, by telephone, to schedule an interview to address such issues.

Respectfully submitted,

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